What is claimed is:

1. A frame signal for communicating payloads of data in a time division multiplexed frame stream, the frame signal comprising:

a first header field including a first frame type field;

a first payload field;

a second header field smaller than the first header field and including a second frame type field; and

a second payload field;

wherein the first payload field, first header field, second payload field, and the second header field encapsulated in a single frame.

2. The frame signal of claim 1, wherein the first header field further includes a hopping beam guard band having a duration encompassing an expected circuit switching downlink beam hopping delay.

3. The frame signal of claim 1, wherein the first header field includes a first pseudorandom noise synchronization field.

4. The frame signal of claim 3, wherein the second header field includes a second pseudorandom noise synchronization field.

5. The frame signal of claim 4, wherein the first and second pseudorandom noise synchronization fields carry identical pseudorandom noise synchronization codes.

6. The frame signal of claim 1, wherein the first payload field carries first data scrambled by a pseudorandom noise scrambling sequence.

7. The frame signal of claim 6, wherein the second payload field carries second data scrambled by a pseudorandom noise scrambling sequence.

8. The frame signal of claim 1, wherein the first frame type field carries at least one of a coding identifier and a power gating identifier.

9. The frame signal of claim 8, wherein the coding identifier specifies one of a heavy or light coding for first payload field.

10. The frame signal of claim 8, wherein the power gating indicator specifies one of a first payload power gate and a frame power gate.

11. The frame signal of claim 8, wherein the second frame type field carries at least one of a second coding identifier and a second power gating identifier.

12. The frame signal of claim 11, wherein the second coding identifier specifies one of a heavy or light coding for second payload field.

13. The frame signal of claim 11, wherein the second power gating indicator specifies one of a second payload power gate and a frame power gate.

14. The frame signal of claim 1, wherein the first header field further includes a masterframe count field, and a subframe count field.

15. The frame signal of claim 1, further comprising at least one additional header field and at least one additional payload field, the at least one additional header field smaller than the first header field.

16. A method for transmitting a communication frame, the method comprising:

transmitting a first header field including a first frame type field;

transmitting a first payload field;

transmitting a second header field smaller than the first header field and including a second frame type field,

transmitting a second payload field; and

the first payload field, first header field, second payload field, and the second header field encapsulated in a single frame.

17. The method of claim 16, wherein transmitting the first header field further comprises transmitting

a hopping beam guard band have a duration encompassing an expected circuit switch downlink beam hopping delay.

18. The method of claim 16, wherein transmitting the first header field comprises transmitting a first pseudorandom noise synchronization field, wherein transmitting the second header field comprises transmitting a second pseudorandom noise synchronization field, and wherein the first and second pseudorandom noise synchronization fields carry identical pseudorandom noise synchronization codes.

19. The method of claim 16, wherein transmitting the first header field further comprises transmitting at least one of a first payload coding identifier and a first payload power gating identifier in the first payload field type indicator, and wherein transmitting the second header field further comprises further comprises transmitting at least one of a second payload coding identifier and a second payload power gating identifier in the second payload field type indicator.

20. The method of claim 19, wherein transmitting the first payload coding identifier comprises transmitting one of a heavy or light coding identifier, and wherein transmitting the second payload coding identifier comprises transmitting one of a heavy or light coding identifier.

21. The method of claim 20, wherein transmitting the first payload power gating identifier comprises transmitting one of a first payload power gate identifier and a frame power gate identifier, and wherein transmitting the second payload power gating identifier comprises transmitting one of a second payload power gate identifier and the frame power gate identifier.

22. A downlink frame processing module comprising:

an outer coder;

an inner coder coupled to the outer coder, the inner coder including a coded data output; and

a downlink frame organizer connected to the coded data output, wherein the downlink frame organizer packages coded data present on the coded data output into a single frame including:

a first payload field;

a first header field including a first frame type field;

a second payload field; and

a second header field smaller than the first header field and including a second frame type field.

23. The downlink frame processing module of claim 22, further comprising a scrambler coupled to the inner coder and the outer coder.

24. The downlink frame processing module of claim 22, wherein the outer coder is a Reed-Solomon encoder and the inner coder is a Convolutional encoder.

25. The downlink frame processing module of claim 22, wherein the first header field further

includes a hopping beam guard band have a duration encompassing an expected circuit switching beam hopping delay.

26. The downlink frame processing module of claim 22, wherein the first header field and the second header field include an identical pseudorandom noise synchronization code.

27. The downlink frame processing module of claim 22, wherein the first payload field type indicator includes at least one of a coding identifier and a power gating identifier.

28. The downlink frame processing module of claim 27, further comprising a data memory coupled to the outer coder.

29. The downlink frame processing module of claim 28, where the data memory stores 53 byes ATM cells.

30. A communication signal comprising:

368 Binary Phase Shift Keyed (BPSK) first header symbols followed by 7552 Quadrature Phase Shift Keyed

(QPSK) first payload symbols, followed by 16 QPSK flush symbols, followed by 96 BPSK second header symbols, followed by 7552 QPSK second payload symbols, followed by 16 QPSK flush symbols.

31. The communication signal of claim 30, wherein the first header comprises 114 guard band symbols, 64 first pseudorandom noise synchronization symbols, 32 first frame type symbols, 32 masterframe count symbols, and 64 subframe count symbols, and wherein the second header comprises 64 second pseudorandom noise synchronization symbols and 32 second frame type symbols.

32. The communication signal of claim 31, wherein the first and second payload symbols are concatenated coded using a Reed Solomon outer code and one of a 3/8 rate and 3/4 rate convolutional code, interleaved, and scrambled according to a pseudorandom noise scrambling sequence.

33. The communication signal of claim 31, transmitted at a rate of 196.7 megasymbols per second.

34. A method for transmitting a communication frame, the method comprising:

transmitting in order 368 Binary Phase Shift Keyed (BPSK) first header symbols followed by 7552 Quadrature Phase Shift Keyed (QPSK) first payload symbols, followed by 16 QPSK flush symbols, followed by 96 BPSK second header symbols, followed by 7552 QPSK second payload symbols, followed by 16 QPSK flush symbols.

35. The method of claim 34, wherein transmitting the first header comprises transmitting 114 guard band symbols, 64 first pseudorandom noise synchronization symbols, 32 first frame type symbols, 32 masterframe count symbols, and 64 subframe count symbols, and wherein transmitting the second header comprises transmitting 64 second pseudorandom noise synchronization symbols and 32 second frame type symbols.

36. The method of claim 35, wherein transmitting the first and second payload symbols comprises transmitting first and second payload symbols

concatenated coded using a Reed Solomon outer code and one of a 3/8 rate and 3/4 rate convolutional code, interleaved, and scrambled according to a pseudorandom noise scrambling sequence.

37. The method of claim 35, wherein transmitting occurs at 196.7 megasymbols per second.